

AMENDMENTS TO THE CLAIMS

Please amend claims 1, 6-12, 14 and 15 as directed below. Claims 2-5, 13, 16 and 18 remain unchanged. Claim 19 is canceled herein, and claim 17 was canceled previously. All claims are printed below for the Examiner's convenience. The claims have thus been revised in the manner required by 37 C.F.R. §1.121.

1. (Currently Amended) An injector system for injection of a fluid medium into a patient within an electromagnetic isolation area, the injector system comprising:

- (a) a powered injector positioned within the isolation area;
- (b) a first communication unit integral with the powered injector thereby enabling the first communication unit and the powered injector to be moved as a unit;
- (c) a system controller positioned outside the isolation area, the system controller comprising an operator interface; ~~and~~
- (d) a second communication unit integral with the system controller; and ~~the first and second communication units being adapted to communicate by transmission of energy through the air, the energy being chosen to not create substantial interference with a magnetic resonance imaging scanner~~
- (e) an intermediate communication unit for ensuring communication between the first and the second communication units and therethrough between the powered injector and the system controller, the communication units being adapted to communicate by transmission of energy through the air, the energy being chosen to not create substantial interference with a magnetic resonance imaging scanner.

2. (Original) The injector system of Claim 1 wherein the energy is electromagnetic energy outside the frequency range of the scanner.

3. (Original) The injector system of Claim 2 wherein the frequency of the RF energy is above approximately 1 Gigahertz.

4. (Original) The injector system of Claim 1 wherein the energy is sonic energy or ultrasonic energy.

5. (Original) The injector system of Claim 1 wherein the energy is visible light or infrared light.

6. (Currently Amended) The injector system of Claim 1 wherein the [~~; further comprising at least one~~] intermediate communication unit is positioned within the isolation area [~~through which the first communication unit can communicate with the second communication unit, the first communication unit communicating with the intermediate communication by transmission of energy through the air~~].

7. (Currently Amended) The injector system of Claim 1 wherein the injector system has [~~; further comprising~~] a plurality of the intermediate communication units positioned within the

isolation area for ensuring through which the first communication between unit can communicate with the first and the second communication units and thus the powered injector and the system controller [~~the first communication unit communicating with the intermediate communication units by transmission of energy through the air~~].

8. (Currently Amended) A system for use with an MRI scanner positioned on a first side of an electromagnetic isolation barrier, the system comprising:

an injector control unit operable to control injection of a fluid medium into a patient, the injector control unit positioned on the first side of the isolation barrier and comprising a first communication unit integral therewith; and

a system controller positioned on a second side of the isolation barrier, the system controller comprising a second communication unit integral therewith; and

an intermediate communication unit for ensuring communication between the first and the second communication units and thus the injector control unit and the system controller, the first communication unit being adapted to communicate with the second communication unit in a bi-directional manner via the intermediate communication unit by transmission of energy through the air, the energy being chosen to not create substantial interference with a magnetic resonance imaging scanner.

9. (Currently Amended) The [~~injector~~] system of Claim 8 wherein the system has a plurality of the intermediate communication units for ensuring communication between the first and

the second communication units ~~[is integral with]~~ and thus the injector control unit ~~[thereby enabling the first communication unit]~~ and the ~~[injector control unit to be moved as a unit]~~ system controller.

10. (Currently Amended) The ~~[injector]~~ system of Claim [9] 8 wherein the energy comprises electromagnetic energy outside the frequency range of the scanner.

11. (Currently Amended) The ~~[injector]~~ system of Claim ~~[11]~~ 10 wherein the frequency of the RF energy is above approximately 1 Gigahertz.

12. (Currently Amended) A communication system for use with an MRI imaging system, the communication system comprising:

a first communication unit positioned ~~[within a shielded housing]~~ on an interior side of the isolation barrier, the first communication unit comprising a first receiver and a first transmitter; and

a second communication unit positioned on an exterior side of the isolation barrier, the second communication unit comprising a second receiver and a second transmitter; and

an intermediate communication unit for relaying communication between the first and the second communication units, the first communication unit being ~~[in connection via optical cabling with a first light collimating device positioned on an interior side of the isolation barrier adjacent a viewing window in the isolation barrier,]~~ adapted to communicate with the second communication unit ~~[being]~~ in a bidirectional manner via ~~[connection via optical cabling with a second light collimating device positioned on the exterior side of the isolation barrier adjacent a viewing window]~~

~~in the isolation barrier, the first communication unit and] the [second] intermediate communication unit [communicating via] by transmission of [optical] energy [between the first light collimating device and the second light collimating device] through the air, the energy being chosen to not create substantial interference with the MRI imaging system.~~

13. (Original) The communication system of Claim 12 wherein the first communication unit is positioned within a shielded housing.

14. (Currently Amended) The communication system of Claim 12 wherein the first communication unit is positioned within a shielded housing of an injector control unit of an injector system.

15. (Currently Amended) The communication system of Claim 14 wherein the ~~[first light collimating device includes a first lens assembly in communication with the first transmitter via optical cable and a second lens assembly in communication with the first receiver via optical cable, the second light collimating device including a third lens assembly in communication with the second receiver via optical cable and a fourth lens assembly in communication with the second transmitter via optical cable, the first lens assembly and the third lens assembly being in general alignment to enable communication between the first transmitter and the second receiver via transmission of light therebetween, the second lens assembly and the fourth lens assembly being in general alignment to enable communication between the first receiver and the second transmitter via transmission of light therebetween]~~ second communication unit is associated with a system controller of the injector system.

16. (Previously Presented) A method of controlling an injector within an isolation barrier of a magnetic resonance imaging area, the method comprising:

transmitting RF signals outside the frequency range of the magnetic resonance imaging scanner from a system control unit positioned outside the isolation barrier to an injector control unit inside the isolation barrier, the system control unit comprising an operator interface; and

transmitting RF signals outside the frequency range of the magnetic resonance imaging scanner from the injector control unit to the system control unit;

wherein RF signals of at least two different frequencies are transmitted to authenticate data, with each of the RF frequencies being outside the frequency range of the scanner.

17. (Canceled)

18. (Original) The method of Claim 16 wherein a predetermined authentication algorithm is used to authenticate RF signals transmitted between the system control unit and the injector control unit.

19. (Canceled)